Application of the Lake Okeechobee Regulation Schedule (LORS2008) on 1/24/2022 (ENSO Condition: La Niña)

Lake Okeechobee Net Inflow Outlook:

The Lake Okeechobee Net Inflow Outlook has been computed using 4 methods: Croley's method[1], the SFWMD empirical method[2], a sub-sampling of La Nina years[3] and a sub-sampling of warm years of the Atlantic Multi-decadal Oscillation (AMO) in combination with La Nina ENSO years[4]. The results for Croley's method and the SFWMD empirical method are based on the CPC Outlook.

Table of the Lake Okeechobee Net Inflow Outlooks in feet of equivalent depth. All methods are updated on a weekly basis with observed net inflow for the current month.

Season	Croley's Method[1*]		SFWMD Empirical Method[2]		Sub-sampling of La Nina ENSO Years[3]		Sub-sampling of AMO Warm + La Nina ENSO Years[4]	
	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition	Value (ft)	Condition
Current (Jan-Jun)	N/A	N/A	0.60	Dry	-0.23	Dry	0.00	Dry
Multi Seasonal (Jan-Oct)	N/A	N/A	3.12	Wet	2.14	Normal	1.95	Normal

*Croley's Method Not Produced for This Report

See Seasonal and Multi-Seasonal tables for the classification of Lake Okeechobee Outlooks.

The recommended methods and values for estimating the Lake Okeechobee Net Inflow Outlook are shaded and should be used in the LORS2008 Release Guidance Flow Charts.

**Sub-sampling is a weighted average of ENSO conditions based on the ENSO forecast used.

Tributary Hydrologic Conditions Graph:

-914.5 cfs 14-day running average for Lake Okeechobee Net Inflow through 1/9/2022.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

-1.90 for Palmer Drought Index on 1/24/2022.
According to the classification in Tributary Hydrologic Conditions table, this condition is Dry.

The wetter of the two conditions above is **Dry.**

LORS2008 Classification Tables:

Lake Okeechobee Stage on 1/24/2022:

Lake Okeechobee Stage: **15.11 feet**

Lake Okeechobee Management Zone/Band		Bottom Elevation (feet, NGVD)	Current Lake Stage
High Lake Management Band		17.25	
Operational Band	High sub-band	16.79	
	Intermediate sub-band	16.06	
	Low sub-band	13.76	← 15.11 ft
Base Flow sub-band		12.60	
Beneficial Use sub-band		12.04	
Water Shortage Management Band			

Part C of LORS2008: Discharge to WCAs

Up to Maximum Practicable to the WCAs if desirable or with minimum Everglades impact; otherwise no releases to WCAs.

Part D of LORS2008: Discharge to Tide

Up to 450 cfs at S-79 and up to 200 cfs at S-80.

LORS2008 Implementation on 1/24/2022 (ENSO Condition- La Nina Watch):

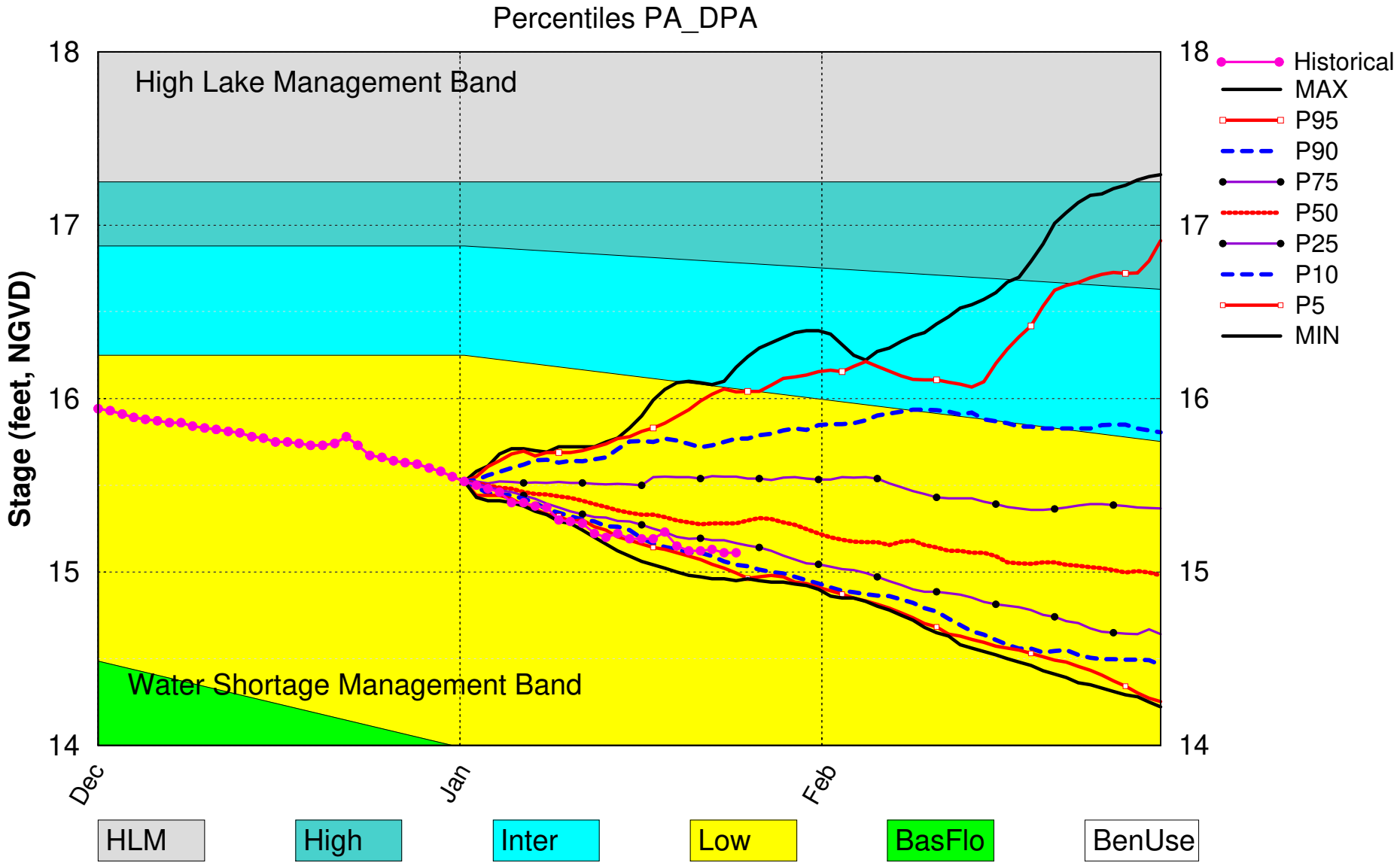
Status for week ending 1/24/2022:

Water Supply Risk Evaluation

Area	Indicator	Value	Color Coded Scoring Scheme
LOK	Projected LOK Stage for the next two months	Low Sub-band	M
	Palmer Drought Index for LOK Tributary Conditions	-1.90 (Dry)	M
	CPC Precipitation Outlook	1 month: Below Normal	M
		3 months: Below Normal	H
	LOK Seasonal Net Inflow Outlook	–0.23 ft	H
	ENSO Forecast	Extremely Dry	
	LOK Multi-Seasonal Net Inflow Outlook	2.14 ft	M
	ENSO Forecast	Normal	
WCAs	WCA 1: 3 Station Average (Sites 1-7, 1-8T and 1-9)	Above Line 1 (17.17 ft)	L
	WCA 2A: Site 2-17	Above Line 1 (12.36 ft)	L
	WCA-3A: 3 Station Average (Sites 63, 64, and 65)	Above Line 1 (9.74 ft)	L
LEC	Service Area 1	Year-Round Irrigation Rule in effect	L
	Service Area 2	Year-Round Irrigation Rule in effect	L
	Service Area 3	Year-Round Irrigation Rule in effect	L

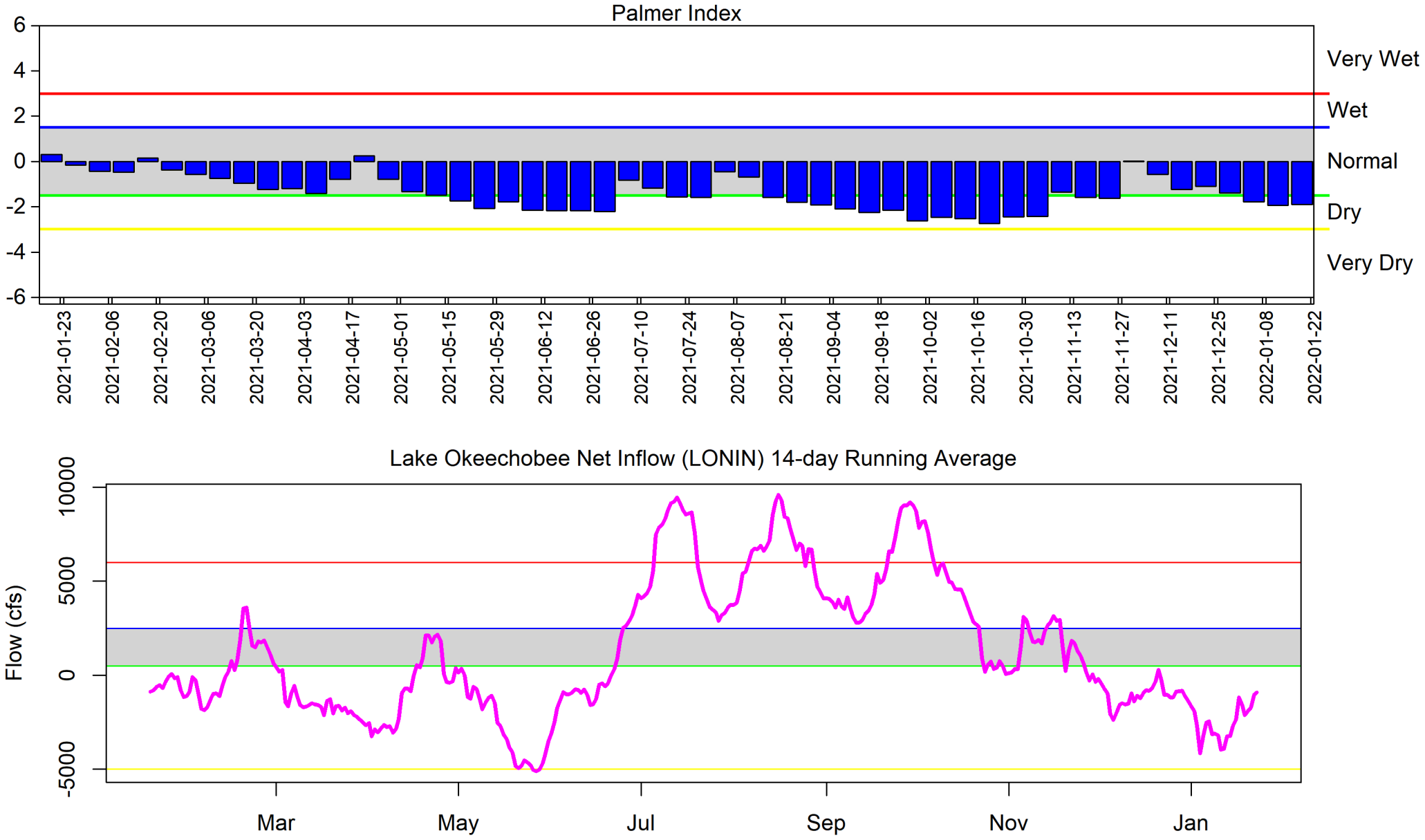
Note: The water supply risk classification based on the Palmer index, as well as the LOK seasonal and multi-seasonal net inflow outlooks use slightly different classification intervals than those used by the 2008-LORS.

Lake Okeechobee SFWMM Jan 2022 Position Analysis



(See assumptions on the Position Analysis Results website)

Mon Jan 24 18:06:24 2022


Palmer Index
6
4
2
0
-2
-4
-6
Very Wet
Wet
Normal
Dry
Very Dry
2021-01-23
2021-02-06
2021-02-20
2021-03-06
2021-03-20
2021-04-03
2021-04-17
2021-05-01
2021-05-15
2021-05-29
2021-06-12
2021-06-26
2021-07-10
2021-07-24
2021-08-07
2021-08-21
2021-09-04
2021-09-18
2021-10-02
2021-10-16
2021-10-30
2021-11-13
2021-11-27
2021-12-11
2021-12-25
2022-01-08
2022-01-22
Lake Okeechobee Net Inflow (LONIN) 14-day Running Average
Flow (cfs)
10000
5000
0
-5000
Mar
May
Jul
Sep
Nov
Jan

2008 LORS

Part C: Establish Allowable Lake Okeechobee Releases to the Water Conservation Areas

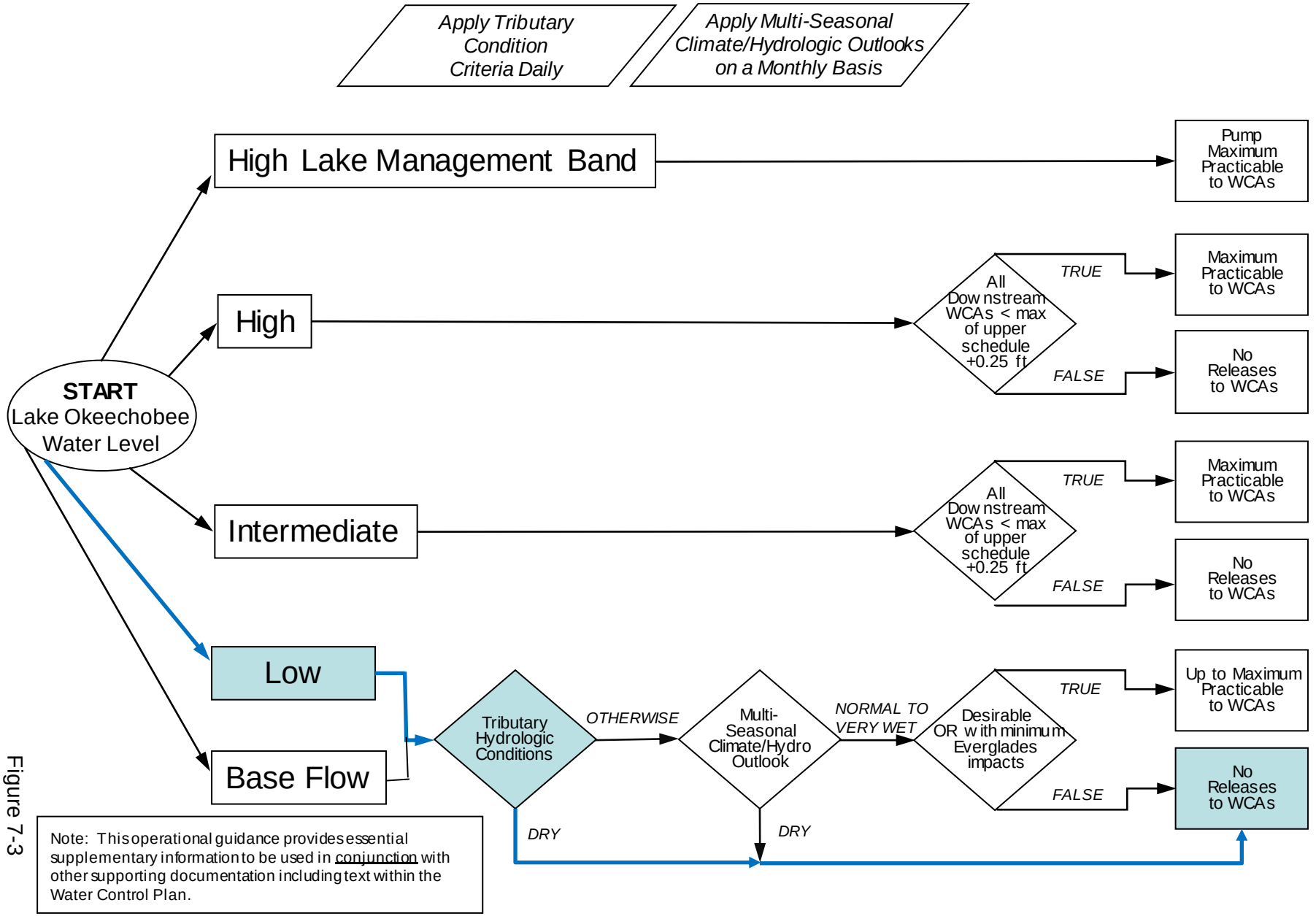
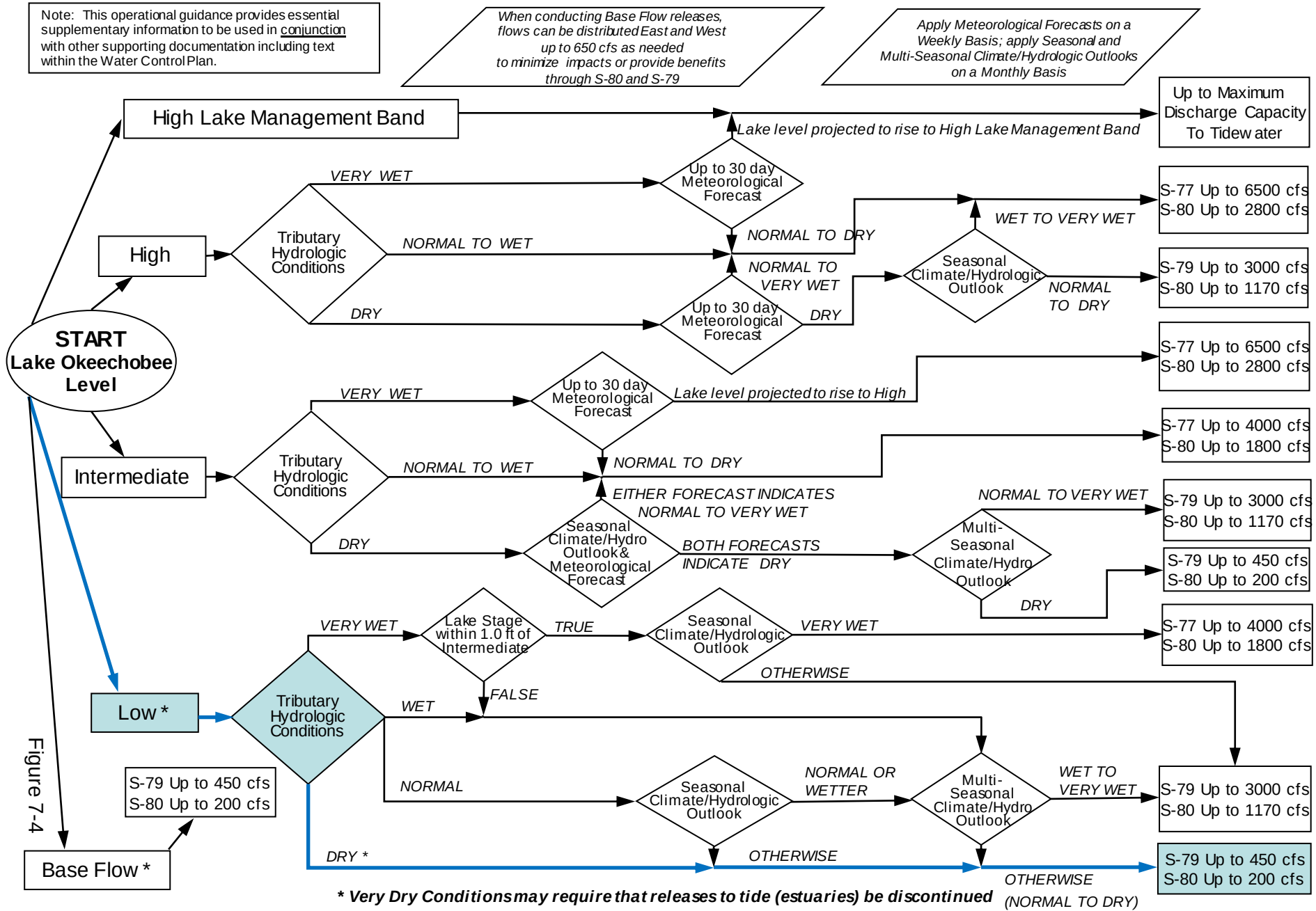


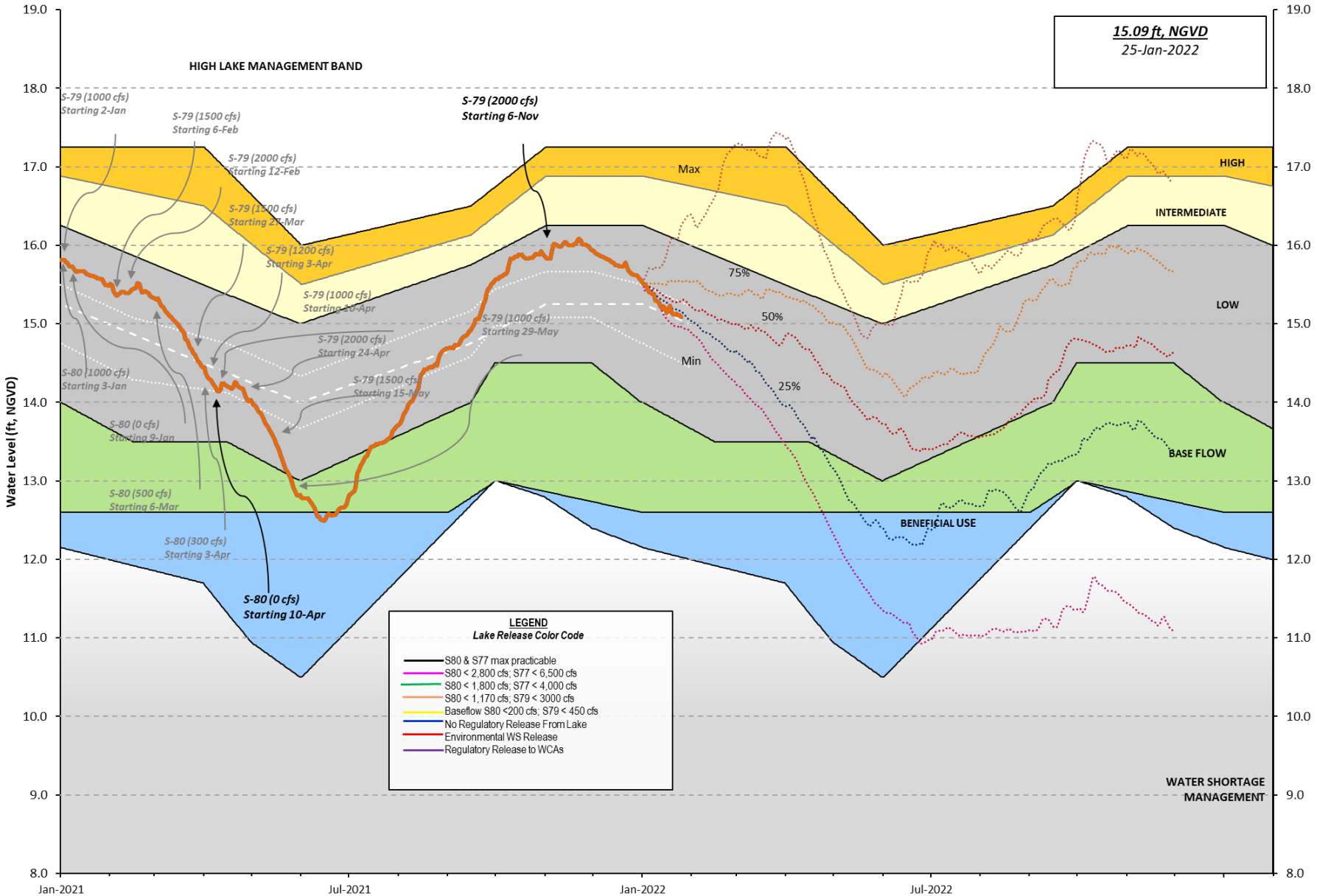
Figure 7-3

2008 LORS

Part D: Establish Allowable Lake Okeechobee Releases to Tide (Estuaries)



Lake Okeechobee Water Level History and Projected Stages



LORS-2008
Adopted by USACE 28-April-2008

Projected Stage Percentiles From SFWMD-HESM Position Analysis

U. S. Army Corps of Engineers, Jacksonville District
Lake Okeechobee and Vicinity Report
** Preliminary Data - Subject to Revision **

Data Ending 2400 hours 23 JAN 2022

Okeechobee Lake Regulation	Elevation (ft-NGVD)	Last Year (ft-NGVD)	2YRS Ago (ft-NGVD)
*Okeechobee Lake Elevation	15.11	15.59	12.82 (Official Elv)

Bottom of High Lake Mngmt= 17.25 Top of Water Short Mngmt= 12.04
Currently in Operational Management Band

Simulated Average LORS2008 [1965-2000] 13.56
Difference from Average LORS2008 1.55

23JAN (1965-2007) Period of Record Average 14.70
Difference from POR Average 0.41

Today Lake Okeechobee elevation is determined from the 4 Int & 4 Edge stations

++Navigation Depth (Based on 2007 Channel Condition Survey) Route 1 ◆ 9.05'
++Navigation Depth (Based on 2008 Channel Condition Survey) Route 2 ◆ 7.25'
Bridge Clearance = 49.17'

---

4 Interior and 4 Edge Okeechobee Lake Average (Avg-Daily values):

L001	L005	L006	LZ40	S4	S352	S308	S133
14.96	15.04	15.17	15.13	-NR-	15.32	15.18	14.91

*Combination Okeechobee Avg-Daily Lake Average = 15.11 (*See Note)

Okeechobee Inflows (cfs):

S65E	418	S65EX1	0	Fisheating Cr	30
S154	0	S191	0	S135 Pumps	0
S84	314	S133 Pumps	0	S2 Pumps	0
S84X	94	S127 Pumps	0	S3 Pumps	0
S71	0	S129 Pumps	0	S4 Pumps	0
S72	0	S131 Pumps	0	C5	0

Total Inflows: 856

Okeechobee Outflows (cfs):

S135 Culverts	-NR-	S354	0	S77	-NR-
S127 Culverts	0	S351	194	S308	0
S129 Culverts	0	S352	470		
S131 Culverts	0	L8 Canal Pt	-NR-		

Total Outflows: No Report Due To Missing S77 or S308 Discharge Data

****S77 structure flow is being used to compute Total Outflow.
****S308 structure flow is being used to compute Total Outflow.

Okeechobee Pan Evaporation (inches):

S77	-NR-	S308	0.08

Average Pan Evap x 0.75 Pan Coefficient = -NR-" = -NR-'

Lake Average Precipitation using NEXRAD: = -NR-" = -NR-'

Evaporation - Precipitation: = -NR-" = -NR-'
Evaporation - Precipitation using Lake Area of 730 square miles

is equal to -NR-
Lake Okeechobee (Change in Storage) Flow is 0 cfs or 0 AC-FT

	Headwater Elevation (ft-msl)	Tailwater Elevation (ft-msl)	Disch (cfs)	Gate Positions #1 (ft)	#2 (ft)	#3 (ft)	#4 (ft)	#5 (ft)	#6 (ft)	#7 (ft)	#8 (ft)
			(I) see note at bottom								
North East Shore											
S133 Pumps:	13.52	15.04	0	0	0	0	0	0	(cfs)		
S193:											
S191:	19.01	15.02	0	0.0	0.0	0.0					
S135 Pumps:	13.37	15.11	0	0	0	0	0		(cfs)		
S135 Culverts:			-NR-	-NR-	-NR-						
North West Shore											
S65E:	21.01	14.89	418	0.1	0.2	0.1	0.3	0.4	0.4		
S65EX1:	21.01	14.89	0								
S127 Pumps:	13.49	14.92	0	0	0	0	0	0	(cfs)		
S127 Culvert:			0	0.0							
S129 Pumps:	12.92	14.97	0	0	0	0			(cfs)		
S129 Culvert:			0	0.0							
S131 Pumps:	12.88	14.98	0	0	0				(cfs)		
S131 Culvert:			0								
Fisheating Creek											
nr Palmdale		29.19	30								
nr Lakeport											
C5:		-NR-	0	-NR-	-NR-	-NR-					
South Shore											
S4 Pumps:	11.48	-NR-	0	0	0	0			(cfs)		
S169:	15.06	15.08	-NR-	-NR-	-NR-	-NR-					
S310:	15.07		33								
S3 Pumps:	9.91	15.12	0	0	0	0			(cfs)		
S354:	15.12	9.91	0	0.0	0.0						
S2 Pumps:	10.35	-NR-	0	0	0	0	0		(cfs)		
S351:	-NR-	10.35	194	0.0	0.0	0.0					
S352:	15.26	10.49	470	0.2	0.3						
C10A:	-NR-	15.14		8.0	8.0	8.0	0.0	0.0			
L8 Canal PT		15.14	-NR-								
S351 and S352 Temporary Pumps/S354 Spillway											
S351:	10.35	-NR-	194	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	-NR-	
S352:	10.49	15.26	470	-NR-	-NR-	-NR-	-NR-				
S354:	9.91	15.12	0	-NR-	-NR-	-NR-	-NR-				
Caloosahatchee River (S77, S78, S79)											
S47B:	13.36	12.51		1.8	2.3						
S47D:	12.48	11.02	0	0.0							
S77:											
Spillway and Sector Preferred Flow:											
	14.82	10.91	1330	0.5	2.5	2.5	0.0				
Flow Due to Lockages+:			-NR-								
S78:											

```
    Spillway and Sector Flow:
              10.89      3.01    1625    1.0  2.5  0.0  1.5
    Flow Due to Lockages+:        -NR-

  S79:
    Spillway and Sector Flow:
               3.15      0.76    1983    0.0  0.0  1.0  2.0  2.0  2.0  0.0  0.0
    Flow Due to Lockages+:           2
    Percent of flow from S77        67%
    Chloride            (ppm)      0


St. Lucie Canal (S308, S80)
  S308:
    Spillway and Sector Preferred Flow:
              15.14     14.33       0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:           0

  S153:        18.87     14.19       0    0.0  0.0
  S80:
    Spillway and Sector Flow:
              14.39      1.40     236    0.0  0.0  0.0  0.0  0.0  0.0  0.0
    Flow Due to Lockages+:           0
    Percent of flow from S308        0%

  Steele Point Top Salinity    (mg/ml) ****
  Steele Point Bottom Salinity (mg/ml) ****

  Speedy Point Top Salinity    (mg/ml) ****
  Speedy Point Bottom Salinity (mg/ml) ****

 + Flow Due to lockages is computed utilizing average daily headwater and
   tailwater along with total number of lockages for the day to calculate
   a volume which is then converted to an average discharge in cfs.
++ Preferred flow is determined from either the spillway discharge or the below flow meter daily
```

Daily Precipitation Totals	1-Day (inches)	3-Day (inches)	7-Day (inches)	----- Wind ---- Direction (Deg°)	Speed (mph)
S133 Pump Station:	-NR-	0.00	0.00		
S193:	-NR-	0.00	0.00	-NR-	-NR-
Okeechobee Field Station:	-NR-	0.00	0.00		
S135 Pump Station:	-NR-	0.00	0.00		
S127 Pump Station:	-NR-	0.00	0.00		
S129 Pump Station:	-NR-	0.00	0.00		
S131 Pump Station:	-NR-	0.00	0.00		
S77:	3.67	3.71	3.82	322	3
S78:	1.47	1.53	1.57	280	1
S79:	6.34	6.81	6.83	319	2
S4 Pump Station:	-NR-	0.00	0.00		
Clewiston Field Station:	-NR-	0.00	0.00		
S3 Pump Station:	-NR-	0.00	0.00		
S2 Pump Station:	-NR-	0.00	0.00		
S308:	2.30	2.41	2.46	322	9
S80:	2.67	2.99	3.14	293	1
Okeechobee Average (Sites S78, S79 and S80 not included)	2.99	0.47	0.48		
Oke Nexrad Basin Avg	-NR-	0.00	0.00		

```
Okeechobee Lake Elevations  23 JAN 2022          15.11 Difference from 23JAN22
   23JAN22  -1 Day  =       22 JAN 2022          15.11             0.00
```

23JAN22	-2 Days =	21 JAN 2022	15.13	0.02
23JAN22	-3 Days =	20 JAN 2022	15.12	0.01
23JAN22	-4 Days =	19 JAN 2022	15.12	0.01
23JAN22	-5 Days =	18 JAN 2022	15.15	0.04
23JAN22	-6 Days =	17 JAN 2022	15.23	0.12
23JAN22	-7 Days =	16 JAN 2022	15.19	0.08
23JAN22	-30 Days =	24 DEC 2021	15.66	0.55
23JAN22	-1 Year =	23 JAN 2021	15.59	0.48
23JAN22	-2 Year =	23 JAN 2020	12.82	-2.29

Long Term Mean 30day Avearge ET for Lake Alfred (Inches) = -NR-

Lake Okeechobee Net Inflow (LONIN)

		Average Flow over the previous 14 days			Avg-Daily Flow
23JAN22	Today =	23 JAN 2022	-321	MON	2059
23JAN22	-1 Day =	22 JAN 2022	-417	SUN	-3157
23JAN22	-2 Days =	21 JAN 2022	-1020	SAT	3426
23JAN22	-3 Days =	20 JAN 2022	-1107	FRI	1565
23JAN22	-4 Days =	19 JAN 2022	-1232	THU	-3632
23JAN22	-5 Days =	18 JAN 2022	-638	WED	-14625
23JAN22	-6 Days =	17 JAN 2022	-233	TUE	9668
23JAN22	-7 Days =	16 JAN 2022	-1059	MON	12601
23JAN22	-8 Days =	15 JAN 2022	-2104	SUN	-8510
23JAN22	-9 Days =	14 JAN 2022	-1633	SAT	-3878
23JAN22	-10 Days =	13 JAN 2022	-1623	FRI	7990
23JAN22	-11 Days =	12 JAN 2022	-2438	THU	-342
23JAN22	-12 Days =	11 JAN 2022	-2484	WED	-9279
23JAN22	-13 Days =	10 JAN 2022	-1895	TUE	1626

S65E

		Average Flow over previous 14 days			Avg-Daily Flow
23JAN22	Today=	23 JAN 2022	412	MON	455
23JAN22	-1 Day =	22 JAN 2022	406	SUN	437
23JAN22	-2 Days =	21 JAN 2022	400	SAT	385
23JAN22	-3 Days =	20 JAN 2022	399	FRI	407
23JAN22	-4 Days =	19 JAN 2022	398	THU	413
23JAN22	-5 Days =	18 JAN 2022	400	WED	405
23JAN22	-6 Days =	17 JAN 2022	400	TUE	462
23JAN22	-7 Days =	16 JAN 2022	397	MON	440
23JAN22	-8 Days =	15 JAN 2022	396	SUN	-NR-
23JAN22	-9 Days =	14 JAN 2022	400	SAT	337
23JAN22	-10 Days =	13 JAN 2022	407	FRI	364
23JAN22	-11 Days =	12 JAN 2022	411	THU	416
23JAN22	-12 Days =	11 JAN 2022	412	WED	434
23JAN22	-13 Days =	10 JAN 2022	413	TUE	402

S65EX1

		Average Flow over previous 14 days			Avg-Daily Flow
23JAN22	Today=	23 JAN 2022	0	MON	0
23JAN22	-1 Day =	22 JAN 2022	0	SUN	0
23JAN22	-2 Days =	21 JAN 2022	0	SAT	0
23JAN22	-3 Days =	20 JAN 2022	0	FRI	0
23JAN22	-4 Days =	19 JAN 2022	0	THU	0
23JAN22	-5 Days =	18 JAN 2022	0	WED	0
23JAN22	-6 Days =	17 JAN 2022	0	TUE	0
23JAN22	-7 Days =	16 JAN 2022	0	MON	0
23JAN22	-8 Days =	15 JAN 2022	0	SUN	0
23JAN22	-9 Days =	14 JAN 2022	0	SAT	0
23JAN22	-10 Days =	13 JAN 2022	0	FRI	0
23JAN22	-11 Days =	12 JAN 2022	0	THU	0
23JAN22	-12 Days =	11 JAN 2022	0	WED	0
23JAN22	-13 Days =	10 JAN 2022	0	TUE	0

Lake Okeechobee Outlets Last 14 Days

DATE	S-77 Discharge (ALL DAY) (AC-FT)	Below S-77 Discharge (ALL-DAY) (AC-FT)	S-78 Discharge (ALL DAY) (AC-FT)	S-79 Discharge (ALL DAY) (AC-FT)
23 JAN 2022	-NR-	2684	-NR-	3935
22 JAN 2022	-NR-	2234	3158	3356
21 JAN 2022	-NR-	2656	2804	4084
20 JAN 2022	-NR-	2914	2923	4212
19 JAN 2022	2477	2559	3406	4103
18 JAN 2022	2551	2877	3312	4279
17 JAN 2022	1434	1998	2858	3995
16 JAN 2022	2059	2406	2725	3826
15 JAN 2022	2640	2776	2747	3436
14 JAN 2022	2548	2596	2572	3486
13 JAN 2022	3366	3586	2832	4065
12 JAN 2022	3718	4197	3671	3948
11 JAN 2022	2588	2849	3264	4325
10 JAN 2022	2766	2979	2865	3908

DATE	S-310 Discharge (ALL DAY) (AC-FT)	S-351 Discharge (ALL DAY) (AC-FT)	S-352 Discharge (ALL DAY) (AC-FT)	S-354 Discharge (ALL DAY) (AC-FT)	L8 Canal Pt Discharge (ALL DAY) (AC-FT)
23 JAN 2022	65	385	933	0	-NR-
22 JAN 2022	16	0	0	0	-NR-
21 JAN 2022	-2	0	0	0	-NR-
20 JAN 2022	63	216	17	0	-NR-
19 JAN 2022	-32	1133	167	500	-NR-
18 JAN 2022	-23	1408	170	208	-NR-
17 JAN 2022	28	0	0	0	-NR-
16 JAN 2022	-8	0	0	0	-NR-
15 JAN 2022	76	0	0	394	31599
14 JAN 2022	209	883	63	193	183249
13 JAN 2022	46	2202	0	166	******
12 JAN 2022	82	2613	135	198	******
11 JAN 2022	91	2886	418	220	******
10 JAN 2022	212	2285	412	423	******

DATE	S-308 Discharge (ALL DAY) (AC-FT)	Below S-308 Discharge (ALL-DAY) (AC-FT)	S-80 Discharge (ALL-DAY) (AC-FT)
23 JAN 2022	0	-NR-	467
22 JAN 2022	0	-NR-	555
21 JAN 2022	1	-NR-	0
20 JAN 2022	0	-NR-	0
19 JAN 2022	1343	-NR-	0
18 JAN 2022	1047	2037	0
17 JAN 2022	466	-NR-	0
16 JAN 2022	1271	******	0
15 JAN 2022	1482	******	0
14 JAN 2022	1498	******	0
13 JAN 2022	1505	-NR-	0
12 JAN 2022	1125	-NR-	0
11 JAN 2022	1058	-NR-	0
10 JAN 2022	1345	-NR-	0

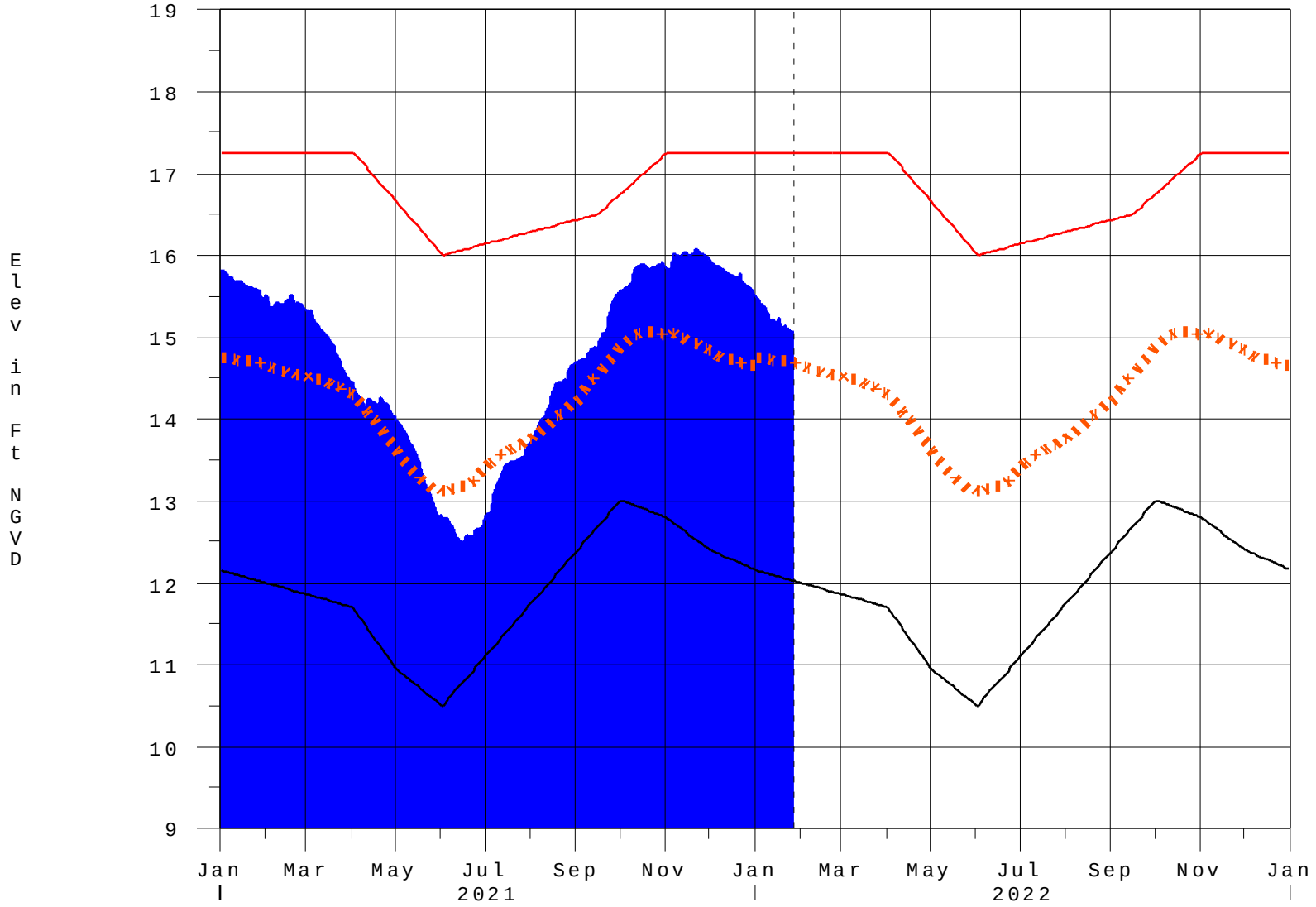
*** NOTE: Discharge (ALL DAY) is computed using Spillway, Sector Gate and Lockages Discharges from 0015 hrs to 2400 hrs.

(I) - Flows preceeded by "I" signify an instantaneous
flow computed from the single value reported for the day

```
_____________________________________________________________________________
   * On 11 May 1999, Lake Okeechobee Elevation was switched from
     Instantaneous 2400 value to an average-daily lake average.
     On 14 Mar 2001, due to the isolation of various gages within the standard
     10 stations, the average of the interior 4 station gages was used
     as the Lake Okeechobee Elevation.
     On 05 November 2010,  Lake Okeechobee Elevation was switched to a 9 gage
     mix of interior and edge gages to obtain a more reliable representation
     of the lake level.
     On 09 May 2011,  Lake Okeechobee Elevation was switched to a 8 gage
     mix of interior and edge gages to obtain a more reliable representation
     of the lake level due to isolation of S135 from low lake levels.
     Today Lake Okechobee elevation is determined from the 4 Int & 4 Edge stations
  ++ For more information see the Jacksonville District Navigation website
     at http://www.saj.usace.army.mil/
   $ For information regarding Lake Okeechobee Service Area water restrictions
     please refer to www.sfwmd.gov
_____________________________________________________________________________
Report Generated 24JAN2022 @ 09:15  ** Preliminary Data - Subject to Revision **
```

Lake Okeechobee

27JAN22 11:17:24



Classification Tables

Supplemental Tables used in conjunction with the LORS2008 Release

Guidance Flow Charts

- Class Limits for Tributary Hydrologic Conditions

Table K-2 in the Lake Okeechobee Water Control Plan

- 6-15 Day Precipitation Outlook Categories

Table ?? in the Lake Okeechobee Water Control Plan

- Classification of Lake Okeechobee Net Inflow for Seasonal Outlook

Table K-3 in the Lake Okeechobee Water Control Plan

- Classification of Lake Okeechobee Net Inflow for Multi-Seasonal Outlook

Table K-4 in the Lake Okeechobee Water Control Plan

Back to Lake Okeechobee Operations Main Page

Back to U.S. Army Corps of Engineers Lake Okeechobee Operations Homepage

Tributary Hydrologic Classification*	Palmer Index Class Limits	2-wk Mean L.O. Net Inflow Class Limits
Very Wet	3.0 or greater	Greater >= 6000 cfs
Wet	1.5 to 2.99	2500 - 5999 cfs
Near Normal	-1.49 to 1.49	500 - 2499 cfs
Dry	-2.99 to -1.5	-5000 – 500 cfs
Very Dry	-3.0 or less	Less than -5000 cfs

* use the wettest of the two indicators

Classification of Lake Okeechobee Net Inflow Seasonal Outlook*

Lake Net Inflow Prediction [million acre-feet]	Equivalent Depth** [feet]	Lake Okeechobee Net Inflow Seasonal Outlook
> 0.93	> 2.0	Very Wet
0.71 to 0.93	1.51 to 2.0	Wet
0.35 to 0.70	0.75 to 1.5	Normal
< 0.35	< 0.75	Dry

****Volume-depth conversion based on average lake surface area of 467,000 acres**

Classification of Lake Okeechobee Net Inflow Multi-Seasonal Outlook*

Lake Net Inflow Prediction [million acre-feet]	**Equivalent Depth** [feet]**	**Lake Okeechobee Net Inflow Multi-Seasonal Outlook**
> 2.0	> 4.3	Very Wet
1.18 to 2.0	2.51 to 4.3	Wet
0.5 to 1.17	1.1 to 2.5	Normal
< 0.5	< 1.1	Dry

****Volume-depth conversion based on average lake surface area of 467,000 acres**

6-15 Day Precipitation Outlook Categories*

6-15 Day Precipitation Outlook Categories	WSE Decision Tree Categories
Above Normal	Wet to Very Wet
Normal	Normal
Below Normal	Dry

*** Corresponds to Table 7-6 in the Lake Okeechobee Water Control Plan**

Under Construction